**SP21 Project: Analysis of First-Person A.I Training Methods**

Capstone Weekly Status Report

Kyle Hinton (kah31@hood.edu), Kyle McQuillen (kjm28@hood.edu), Paul Wells (pfw3@hood.edu), Somayyeh Kamyab (sk43@hood.edu), Yohannes Teref (yt13@hood.edu)

<https://github.com/rebeljedi999/TheCTeam>

**REPORT WEEK 3 (MAR 8 – MAR 14)**

1. Weekly Accomplishments
   1. Paul implemented a flask server to run python on. Also installed a plugin to unreal to allow the sending of JSON to a server and receive JSON from a server. This is the beginning of the implementation of the AI.
   2. Kyle H. concluded C++ NN research and shifted to Tensorflow agent research for implementation.
   3. Kyle M. reviewed potential reward system implementation in UE4 and began figuring out how to translate in-game data into learnable data and how to transmit it through JSON.
   4. Somayyeh researched blueprints and reinforcement learning.
   5. Yohannes researched reinforcement learning and its implementation in tensorflow.
2. Problems/Issues
   1. Paul had issues getting the JSON plugin working with UE4, resolved by changing plugins.
3. Next week’s planned work
   1. Paul and Kyle H. will begin implementing reinforcement learning in Tensorflow to prepare fore data from the unreal engine.
   2. Kyle M., Somayyeh, and Yohannes will begin implementation of collection from the UE4 agents and the transmitting of data from the game to the learning server.
4. Time log

|  |  |
| --- | --- |
| Last Name | Hours Worked |
| Hinton | 3.5 |
| Kamyab | 5 |
| McQuillen | 7 |
| Teref | 4 |
| Wells | 15 |
| Team Total | 34.5 |

**REPORT WEEK 2 (MAR 1 – MAR 7)**

1. Weekly Accomplishments
   1. Kyle H. and Paul researched ways to implement a neural network into unreal engine and settled on a way that utilizes Tensorflow.
   2. Paul began the implementation of Tensorflow in the Unreal Engine.
   3. Kyle M., Somayyeh, and Yohannes did research on potential reward algorithms we could use and how to implement them into the Unreal Engine.
2. Problems/Issues
   1. Paul had issues with installing dependencies for the project, but resolved the issue by reinstalling python.
3. Next week’s planned work
   1. Kyle M, Somayyah, and Yohannes will implement the reward methods into the unreal engine.
   2. Kyle H. and Paul will implement the neural network with Tensorflow.
4. Time log

|  |  |
| --- | --- |
| Last Name | Hours Worked |
| Hinton | 3.5 |
| Kamyab | 3 |
| McQuillen | 1 |
| Teref | 3.5 |
| Wells | 4 |
| Team Total | 15 |

**REPORT WEEK 1 (FEB 22 - FEB 28)**

1. Weekly Accomplishments
   1. All team members installed, ran, and familiarized themselves with the Unreal Engine environment.
   2. Kyle H., Kyle M., Paul, and Yohannes began tutorials on reinforcement learning in Unreal Engine.
   3. Kyle M. researched genetic algorithms and their possible implementation in Unreal.
2. Problems/Issues
   1. Somayyeh had initial problems with C++ programming, but after reviewing her notes she completed the basic tutorials for the Unreal Engine.
   2. Kyle M. is still trying to figure out the best way to implement the genetic algorithm.
   3. Yohannes struggled with some of the concepts in the reinforcement learning tutorial, but after further research he understands the concepts that were presented.
3. Next week’s planned work
   1. Kyle M., Somayyah, and Yohannes will research methods to reward NN and document potential algorithms.
   2. Kyle H. and Paul will begin a basic implementation of Reinforcement Learning algorithm and NN to get first generation.
4. Time log

|  |  |
| --- | --- |
| Last Name | Hours Worked |
| Hinton | 4.5 |
| Kamyab | 2 |
| McQuillen | 4 |
| Teref | 5 |
| Wells | 4 |
| Team Total | 19.5 |